

Psychological Impact of Blind Box Consumption Based on Uncertainty Mechanism

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Abstract. Blind box economy, a new consumption model that has rapidly emerged in recent years, has demonstrated a strong market growth momentum. In this consumption model, consumers have a high acceptance and preference for the uncertain experience brought by the "mystery reward" mechanism. The emotional connection established between blind box products and IP-based collectibles further strengthens consumers' purchasing motivation and willingness to continuously participate. In terms of the theoretical analysis framework of this article, it mainly relies on the basic theories of consumer psychology and combines the multi-dimensional data resources provided by social media platforms to conduct a systematic exploration and analysis of the psychological mechanism involved in the blind box consumption process. The research results show that blind box consumption behavior can, to a certain extent, trigger a series of positive psychological responses, such as the psychological stimulation stimulated by the process of opening the box, the illusionary cognitive experience of controlling the result, and the subjective emotional projection of the commodity. However, it is worth noting that behind such consumption behaviors, there are also many potential risks and adverse effects, which are specifically manifested as the gradual increase of addictive consumption tendencies, anxiety and frustration caused by uncertain results, as well as social comparison pressure resulting from the influence of others' consumption behaviors. Only through the collaborative efforts of multiple parties can the blind box economy maintain market vitality while steadily developing in a healthier, more orderly and sustainable direction.

Keywords: Psychological Impact, Blind Box Consumption, Uncertainty Mechanism.

1. Introduction

Against the backdrop of the continuous deepening of the digital economy and the constant evolution of consumption patterns, blind boxes, as a new consumption model integrating random mechanisms and emotional projection, have rapidly emerged, demonstrating strong market potential and cultural penetration. This model originated from the Japanese trendy toy industry. Due to its unique "unknown content purchase" mechanism, where consumers cannot predict the specific product when making a purchase and can only reveal the product information after opening the package, it has stimulated consumers' curiosity and desire to explore, creating a shopping experience that is both fun and game-like. It is precisely this highly dependent trait on the unknown that has transformed

blind boxes from a niche collection into a global consumption phenomenon. Especially in the Chinese market, through diversified product development and precise marketing strategies, they have quickly gained high attention and wide acceptance from the younger generation.

The application fields of blind box products are constantly expanding, covering multiple industries from trendy toys, beauty and skin care products, electronic accessories, and snack foods to stationery and cultural and creative gifts, demonstrating the consumption characteristics of cross-border integration. According to relevant reports, the market size of blind boxes in China reached 16.8 billion yuan in 2022 and is expected to exceed 30 billion yuan by 2025. What is reflected in this is not only the transformation of consumption form, but also the concentration of symbolism, socialization and emotional orientation in youth culture. The enthusiasm for blind boxes in the Z generation and 95 is constantly reshaping the consumption logic and becoming the central driver of the city's growth. What lies behind it is not only the transformation of consumption forms, but also a concentrated manifestation of the symbolic, socialized and emotional tendencies in youth culture. The enthusiasm of Generation Z and the post-95s for blind boxes is constantly reshaping consumption logic and has become the core driving force for the growth of this market.

In a high-pressure and fast-paced social environment, the "random surprise" brought by blind box consumption has become an emotional regulation mechanism, helping consumers seek a brief escape from uncertainty. Its core mechanism is highly consistent with the "intermittent reinforcement" theory in behavioral psychology. That is, through an unstable reward structure, it maintains users' continuous participation, enabling individuals to form a reinforcement path in the cycle of "expectation - disappointment - hope", thereby increasing the frequency of consumption and even triggering a certain degree of behavioral dependence.

However, this consumption pattern, while bringing immediate pleasure and social satisfaction, also comes with numerous negative psychological and social effects, attracting widespread attention. From the perspective of psychological mechanisms, blind box consumption involves multiple dimensions such as tolerance for uncertainty, risk preference, emotion regulation, self-identity, and structurally complex and highly individualized. It is particularly worth noting that there is a similarity at the mechanism level between blind boxes and "gambling mechanisms". Some platforms enhance users' anticipation of winning by setting up extremely low probability "hidden editions", which may induce consumers to continuously invest money, thereby causing the accumulation of economic burdens and psychological pressure, and even leading to addictive consumption behaviors.

In the context of the widespread popularity of social media, the "sharing of purchase experiences" related to blind boxes has become increasingly prevalent, further intensifying the competitive mentality and herd behavior among users. Driven by the desire for external recognition and social status, consumers are prone to fall into irrational consumption cycles that exceed their economic capabilities. This phenomenon not only affects the rationality of individual consumption decisions, but also to some extent exacerbates consumption anxiety and social pressure among social groups.

What is particularly worth noting is that the blind box mechanism has a more profound impact on the psychology of the youth group. Compared with adults, teenagers are still in a stage where their values and consumption concepts have not yet been fully formed. Their cognitive development and self-control abilities are not yet mature, making them more susceptible to the "stimulus—reward" consumption model. A large number of middle school students even use their pocket money to engage in frequent consumption in order to gain social recognition or status symbols. Such behavior not only poses a threat to their financial health but may also lead to psychological problems such as anxiety and self-denial. In this context, blind boxes are no longer merely a form of entertainment

consumption; rather, they have become a complex social phenomenon that urgently requires in-depth examination from multiple disciplinary perspectives such as psychology, education, and sociology.

Therefore, this article intends to adopt a psychological perspective, integrating theories of uncertain consumption, behavioral economics, micro-payment mechanisms, and social motivation theory, to deeply analyze the psychological experiences and potential risks associated with blind box consumption, covering both the positive stimulating effects and the negative consequences of addictive tendencies. Based on this, scholars further explore the ethical responsibilities of enterprises in the marketing process, the cognitive adjustment strategies of consumers, and the intervention mechanisms at the policy level. The aim is to provide systematic theoretical support and feasible practical suggestions for the standardized development of the blind box industry and the protection of public mental health.

2. Literature review

The core mechanism of blind boxes is "uncertainty reward", which stems from the Skinner box experiment in behavioral psychology. This mechanism is manifested in consumer behavior as consumers continue to purchase due to the unknown nature and the possibility of obtaining rare editions [1]. Furthermore, "intermittent positive reinforcement" is regarded as the most effective reinforcement method, as it can maximize the probability of repetition of the behavior.

The "small payment paralysis effect" proposed by behavioral economics indicates that consumers tend to lose their rational judgment when faced with frequent but small payments, thereby leading to addictive purchasing behaviors [2]. Especially among the student population, they are highly sensitive to money but have relatively weak self-control, making them more prone to falling into a cycle of excessive spending. Furthermore, repeated failures may trigger the "gamblers' fallacy", where one believes that the next attempt will definitely succeed and thus continues to invest.

In the era of widespread social media, limited-edition boxes have become a form of social currency. Consumers obtain likes and recognition by "showing off their prizes", thereby strengthening their consumption motivation [3]. This mechanism is particularly evident in live box-opening events and on short-video platforms. By obtaining "hidden editions" or rare items, consumers showcase their taste, aesthetic sense or luck, which becomes one of the social motivations for them to participate in the consumption of limited-edition boxes.

Most existing studies have focused on the purchase intentions of adult consumers or marketing strategies, while there is still a lack of thorough exploration in terms of the psychological mechanisms and emotional projection paths of teenagers [4, 5].

Furthermore, there is a lack of systematic research on the impact of cultural differences on the acceptance and consumption motivation of blind boxes, especially in terms of the different values attached to the concept of "surprise" in Eastern and Western societies. From the above, it can be seen that the current research on the consumption psychology of blind boxes is lacking in both the group dimension and the cultural context. To address this deficiency, this paper, while focusing on adult consumers, also pays attention to young consumers. It attempts to explore their psychological reaction patterns and emotional participation paths within the framework of the uncertainty mechanism and also pays attention to the possible moderating effects of cultural background. At the same time, a cultural comparison perspective is introduced to analyze the different understandings of the value of "surprise" in Eastern and Western societies regarding their impact on consumption motivations. In terms of research methods, a combination of literature review and observation of social media texts is employed. A qualitative analysis and theoretical construction approach are

adopted to attempt to construct a more explanatory framework for psychological mechanism analysis.

3. Analysis of the psychological impact of blind box consumption

3.1. Positive psychological effects

The "unknown" nature of the blind box makes the act of opening itself full of excitement and surprise. For example, on a live-streaming platform the moment the box is opened is often accompanied by the audience's excitement and the host's emotional manipulation creates an immersive experience [6]. This uncertainty enhances the interest and appeal of consumption. Studies have shown that the sense of surprise can activate the brain's reward system, release dopamine, and bring about a sense of pleasure.

Many blind box products have collaborated with well-known IPs (such as Disney and Harry Potter), triggering consumers' childhood memories and fostering their emotional identification with the brands. This kind of emotional projection makes the commodity not only have functional value, but also carry personal significance, thereby increasing the purchasing motivation [7]. The emotional connection also enhances users' brand loyalty and the likelihood of repeat purchases. Apart from emotional stimulation and emotional satisfaction, the process of blind box consumption is also presented as a gamified and ritualized behavior, from queueing up to purchase, to shooting opening video clips, and finally to showcasing the collections, it forms a complete entertainment chain. This entertainment-oriented design enhances consumer engagement and also makes it easier for consumers to gain a sense of "accomplishment" within it. Blind box consumption has gradually evolved into a "daily entertainment form", to some extent replacing traditional leisure activities, and has become one of the important channels for urban young people to relieve stress and regulate emotions.

With the development of the blind box culture, a large number of niche cultural platforms such as "blind box player communities", "collectors groups", and "anime interest circles" have emerged. Consumers establish identities, mutual assistance, and a sense of belonging within these communities. The discussions, displays, and exchanges among users in the communities have become the social mechanism that maintains user stickiness, and also deepens the consumers' brand emotional identification.

3.2. Negative psychological risks

Consumers usually overestimate the probability of winning the hidden item. They even establish "strategic purchasing" logic based on rumors, experience, quantity, etc. This sense of control leads to repetitive purchases in an attempt to "gain control", thereby falling into the "sunk cost" trap [8]. Furthermore, some consumers believe that "metaphysics" or "psychological suggestion" can increase probability. This pseudoscientific belief further exacerbates the irrationality of blind sampling behavior.

Blind box consumption has characteristics such as high frequency, small amount, and immediate feedback, which makes it highly prone to triggering addictive mechanisms. Especially among students and young consumers, once they lose rational control, they are prone to financial difficulties and emotional dependence [2]. According to the "2023 Youth Consumption Psychology Report", more than 35% of Gen Z consumers have experienced emotional fluctuations or economic pressure after purchasing collectible boxes due to the "high excitement" they felt. It is worth noting

that addiction to blind boxes is different from traditional consumption addiction. The addictive behavior of blind box addiction is more based on "cognitive biases" and "psychological compensation", causing individuals to be caught in a psychological contradiction between reason and emotion.

Drawing a duplicate or a "common model" often makes consumers feel that they are "tricked by fate", which in turn can lead to anxiety, regret, and even self-denial. Some users expressed on social platforms their desire to "never smoke again", but often they would make a purchase again due to the irresistible urge to "try one more time" [9]. Especially when comparing with "the successful experiences of others", consumers are more likely to magnify their sense of failure, developing an "implicit sense of shame", which further intensifies the negative emotional cycle.

The "showing off of hidden items" and "social media sharing boom" on social media have led many consumers to develop a herd mentality and even force themselves to participate in blind box purchases in order to gain social recognition. This kind of social pressure leads to the dominance of external evaluations in consumer behavior, weakening the individual's subjective judgment [10]. In some campus settings, "whether one possesses a rare item" has become a hidden identity marker, further intensifying group anxiety. Furthermore, under the algorithmic recommendation mechanism, the frequent exposure of "successful cases of others" also exacerbates the information asymmetry, consumers mistakenly believe that "everyone can get blind box hidden edition", falling into a misjudgment of reality.

The research has found that consumers experience a significant psychological gap after failing to open the box. Some people refer to this as the "psychological airdrop effect", that is, the higher the expectation, the greater the gap. Such emotional fluctuations can even trigger "compensatory consumption" behavior, that is; after experiencing disappointment, one invests more money to make up for the psychological imbalance, thus creating a vicious cycle. Consumers, in the cycle of "irrational impulse - temporary satisfaction - emotional depression - re-consumption", often exhibit strong feelings of self-reproach and remorse. Some even experience psychological stress reactions such as "consumption fatigue" or "emotional apathy".

Because teenagers' self-control abilities are not yet fully developed, they are more likely to have excessive reactions when exposed to the consumption mechanism of blind boxes, which is highly stimulating. Their understanding of "probability", "value" and "return" is still incomplete, and they are easily influenced by emotional factors and make irrational decisions. Their understanding of "probability", "value" and "return" is still incomplete, and they are easily influenced by emotional factors and make irrational decisions. At the same time, during their growth process, teenagers generally have a strong need for social recognition and are under peer pressure, which further increases the frequency of the blind-snatching behavior. If the results of multiple attempts do not meet expectations, some individuals may link the failure results to their self-worth, thereby triggering feelings of self-denial and anxiety.

4. Countermeasures and suggestions

4.1. Corporate responsibility and system improvement

Enterprises should disclose the probability of each style being selected in the blind boxes and establish a unified probability identification mechanism. Drawing on the "public disclosure system of winning probabilities" in the lottery industry, a mandatory labeling system and a third-party supervision mechanism should be established to prevent consumers from making misjudgments due

to information asymmetry. The platform should also avoid "starvation marketing" and inducement language, such as "only one last hidden item left" and "limited-time flash sale".

The relevant sections should emphasize the ethical self-discipline of enterprises in marketing and prevent the use of overly stimulating and provocative language in the youth market. The platform should establish a dedicated ethics review committee to review the content directed at minors. Developing an "underage consumer protection system", such as limiting frequency, setting cooling-off periods, and enhancing parental monitoring options. Furthermore, it is suggested that enterprises establish a more humane return and exchange mechanism, set up a "blind box cooling-off period", that is, after a certain period of time after the user opens the gift box, they can choose to cancel the purchase. This measure can effectively alleviate impulsive consumption behavior and protect consumers' mental health.

4.2. Consumer self-protection

Consumers should enhance their understanding of uncertainty mechanisms and marketing psychological strategies and recognize their own susceptibility to psychological biases. Thus, they can make clearer consumption decisions. Consumers can obtain a similar sense of satisfaction through alternative means. For instance, engaging in DIY handicrafts, collecting jigsaw puzzles, and virtual collections can also bring a sense of achievement and belonging, reducing reliance on high-risk blind box purchases.

Social platforms should strengthen the mechanism for recommending positive content, reduce the popularity of "flaunting purchase showcase", and increase the visibility of "rational consumption" and "sharing of failure experiences". By means of "anti-haul", "emotional retrospection" and other forms, it guides consumers to return to their true feelings, thereby creating a healthier social atmosphere.

5. Conclusion

Based on the perspective of uncertainty mechanism, this article comprehensively integrates consumption psychology, behavioral economics and social motivation theory to conduct a systematic analysis of blind box consumption behavior. Research has found that blind box consumption brings about multiple positive psychological experiences, including a sense of stimulation, a sense of control, emotional projection, immersive entertainment, and a sense of community belonging. These mechanisms constitute the psychological foundation for the continuous appeal of blind box consumption. At the same time, it is also accompanied by negative psychological impacts such as addiction risks, anxiety, cognitive biases, and cultural adaptation difficulties, especially having a strong psychological impact on the youth group. Therefore, as a new type of consumption model, blind boxes have an impact that goes beyond the realm of mere economic behavior and holds significant social and psychological significance.

The government and industry regulatory agencies should strengthen the regulation of the blind box market and formulate more targeted policy frameworks. First of all, the definition and classification of blind box products should be clearly defined, and corresponding industry norms should be established. Secondly, efforts should be made to legalize the information disclosure system, requiring platforms to indicate probability data and risk warnings. Furthermore, in terms of protecting minors, measures such as setting a consumption age limit, implementing a mandatory identity verification system, and exploring the implementation of a "digital consumption health grading system" should be considered. Furthermore, scholars can draw on international experience

and introduce "psychological impact assessment" as a pre-review procedure for the new business model, ensuring that the business model does not come at the expense of users' mental health.

This study is mainly based on existing literature and observations from social media, but it still lacks substantial empirical data support. Future research can incorporate methods such as questionnaire surveys, in-depth interviews, and neuro-economics experiments to conduct in-depth studies on the differences in consumers' responses to the blind box mechanism under various age groups, cultural backgrounds, and personality traits. At the same time, cross-cultural research can be further expanded, particularly in comparing the psychological motivations, risk tolerance, and emotional regulation methods of consumers from the East and the West under the "random reward" mechanism. Furthermore, AI-generated content and technologies such as virtual blind boxes will also introduce new psychological variables to the blind box ecosystem and should attract forward-looking attention from the academic community and regulatory authorities.

In conclusion, as a typical example that combines commercial strategies and psychological mechanisms, blind boxes not only demonstrate humanity's deep longing for "the unknown and possibility" but also expose the cognitive loopholes and ethical challenges in the new consumption culture. Only through the collaborative efforts of multiple stakeholders and continuous research can a positive balance be achieved between the protection of consumers' rights and the development of market innovation.

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